POLYFLEX BRIDGE DECK SYSTEM
FIELD QUALITY CONTROL

1. MATERIAL STORAGE, HANDLING AND SAFETY

1.1 Polyflex Bridge System is delivered in clearly marked containers with manufacturer's identification, lot numbers and shelf life expiration dates. The materials are to be conditioned at 70°-90°F prior to application. Containers should not be stored directly on the concrete or steel substrate.

1.2 Refer to Technical Data Pages and Material Data Sheets at all times before and during application.

2. SURFACE PREPARATION

2.1 **Concrete**:

2.1.1 Remove all existing coatings and linings by shot blasting, abrasive blasting or other method approved to achieve a mechanical profile according to SSPC SP13/NACE No 6. ICRI Visual Standards, CSP 4-6 will be used to compare surface texture.

2.1.2 Always verify moisture content to be less than 6% at or below substrate surface. A Pin-Type moisture meter will measure the electrical resistance between the pin electrodes to provide the percentage moisture content (%MC) when measured with an Elcometer 7410 Concrete Moisture Meter or other approved by Wasser.

2.1.3 A 28 day cure is usually required for all freshly placed concrete. In the event that the 28 day cure has not lapsed, follow the guideline of less than 6% moisture content before applying primer.

2.1.4 After the concrete has been prepared, a test shall be performed to measure the substrate cohesion/primer adhesion according to ASTM D 4541. The pull test will be pass if adhesion strengths reach 150 psi.

2.1.5 Concrete with irregular surfaces may require additional concrete repair to eliminate any potential puddling of the primer.

2.1.6 Irregular concrete surfaces will require additional membrane materials.

2.2 **Steel:**

2.2.1 Remove all existing coatings or linings by shotblasting, abrasive blasting or other method approved to achieve a "Commercial Blast" blast to SSPC SP-6 with a 2-3 mil anchor profile.

2.2.2 After substrate has been prepared, a test shall be performed to measure the primer adhesion strength according to ASTM D4541. The pull test will pass if adhesion strengths reach 300 psi.

3. PRIMER APPLICATION

3.1 **Storage and Handling**: Store materials in original containers at ambient temperatures of 70°-90°F. Avoid freezing temperatures.

3.2 **Weather Limitations**: Primer should not be applied below 45°F or if rain is expected within 2 hours following the application. Humidity levels must be monitored with levels not to exceed 85% RH. Application may proceed given the substrate temperature is 5°F above dew point.

3.3 **Protection of Workers, Traffic and Adjacent Areas**: Surfaces should be kept free of any traffic once surface preparation has begun and no trades shall be permitted in areas during the application and curing of the system. If necessary, mask or cover adjacent areas by suitable means.

3.4 **Application Rate**: Concrete: Apply a thin coat, 8-13 mils DFT, of properly mixed material at a rate of 150-200 sq. ft. per gal. by airless spray. Ensure all material is evenly dispersed and that no puddles or heavy spots remain. Coverage will vary depending upon porosity of the substrate and surface texture.
Steel: Apply a thin coat, 3-5 mils DFT, of properly mixed material at a rate of 320-535 sq.ft. per gal. by airless spray.

3.5 **Cure Time**: (@75°F ± 2°F) Wait approximately 1 hour or until primer becomes tacky before applying Membrane. If the primed areas become wet from rain or condensation and are not top coated within 24 hours, the primer will need to be abrasively prepared prior to reprimimg.

3.6 **Reactivity and Non-Cementitious Patches**: Polyflex concrete primers are not recommended for use over a magnesium phosphate patching material, unless additional preparation is provided by removing the top surface of the patch or treating it with a cementitious material.

3.7 **Quality Control Testing**: The following tests will be performed to ensure the primer's integrity.

3.7.1 Moisture Test on concrete surfaces

3.7.2 Temperature and Humidity readings

3.7.3 Adhesion Pull Test

3.8 **Deficiency Repairs**: Any repair of the primed surface will be carried out following the recommendations of the on-site representative to the satisfaction of the State Engineering.

4. MEMBRANE APPLICATION

4.1 **Storage and Handling**: Store materials in original containers at ambient temperatures of 70°-90°F. Avoid freezing temperatures.

4.2 **Weather Limitations**: Refer to Wasser Technical Data Page for drying time schedule as part of Wasser's QC testing. Humidity levels must be monitored with levels not to exceed 85% RH. Application may proceed given the substrate temperature is 5°F above dew point and rising.

4.3 **Protection of Workers, Traffic and Adjacent Areas**: Surfaces should be kept free of any traffic once surface preparation has begun and no trades shall be permitted in areas during the application and curing of the system. If necessary, mask or cover adjacent areas by suitable means. All work to be performed by Licensed Applicators.

4.4 **Application Rate**: Agitation of Part B Resin is required in case any pigments or solids have settled to the bottom of the containers. Membrane to be applied at 80 mils nominal thickness. Material usage can be gauged by monitoring volume gauges on proportioner or by checking film thicknesses of material sprayed onto the deck area. If additional shear resistance between the membrane and wearing surface is required, a shear membrane should be applied at 30-40 mils. An approved aggregate will be broadcast, to refusal, into the wet film and fully integrated into the system. Membrane should not exceed asphalt elevation height.
Spray equipment must be capable of producing 2,500 psi to ensure a minimum of 2,000 psi working pressures. Equipment working temperatures should be maintained at 140°F-160°F.

4.5 **Cure Time**: (@ 75°F±2°F) Membrane will achieve sufficient cure in approximately 1 hour for construction traffic, if necessary. Please refer to cure times listed on Technical Data Pages.

4.6 **Bond Strength**: Bond strength of the membrane and it's adhesion to the prepared and primed substrate shall be a minimum of 150 psi (1 MPa).

4.7 **Quality Control**:

4.7.1 Membrane Thickness: Magnetic/ Ultrasonic mil gauges or sprayed coupon panels will be used to calculate overall membrane system thickness.

4.7.2 Membrane Adhesion: Pull testing will be performed at the rate specified by State DOT Engineers using ASTM D 4541.

4.7.3 Spark Testing for Concrete/Steel: Testing for pin holes or holidays in the finished membrane can be performed if prescribed in project specifications or at owner's request.

4.7.4 Deficiency Repairs: Areas determined to have insufficient mil thickness need to be addressed within four hours of membrane application or additional surface preparation will be required. If repairs are completed outside this recoat window, apply WP 50- Surface Activator to prepare existing membrane for additional film build.

4.7.4.1 Repair for Localized Blisters or Delaminations: Unless otherwise specified, all loose, cracked, blistered or delaminated coating shall be removed. Follow SSPC PA 14 standard, Section 13 Repair of Coated Surfaces (Steel or Concrete). Subsections 13.1 through 13.6 will provide adequate detail for this type of repair.

4.7.4.2 Repair for Large Surface Areas: In the unlikely event of a large scale delamination or poor adhesive qualities, total removal of an installed system may be necessary. The preparation tools that are available include High Volume Grinders, Scarifiers and Milling Equipment. A detailed scope of work must be created to match the specifics of the failed area.

4.7.4.3 Repair for Cored Asphalt Areas: In the event that the existing membrane has been disturbed or breached during asphalt coring, the area(s) need to be prepared and recoated with Polyflex 411 ShearCoat. Air lance the holes with 100psi air pressure to remove any remaining debris. Apply 80 mils of Polyflex 411 and allow to cure for 5 minutes. Apply 40 mils of Polyflex 411and broadcast approved aggregate into the opening. The material can be installed by mixing a small batch of Polyflex 411 by hand or dispensing from pre-filled cartridges.

5. TACK COAT APPLICATION

5.1 **Storage and Handling:** Store materials in original containers in cool, dry conditions and out of direct sunlight.

5.2 **Weather Limitations:** Assure all surface are dry before application and the weather forecast does not indicate rain before tack coat is dry to touch.

5.3 **Protection of Workers, Traffic and Adjacent Areas:** Prior to use, the user must have a basic understanding of heating methods. Surfaces should be kept free of any traffic once surface preparation has begun and no trades shall be permitted in areas during the application and drying of the tack coat. If necessary, mask or cover adjacent areas by suitable means.

5.4 **Application Rate:** The membrane is simply melted in the appropriate indirectly heated melter. For smooth surfaces, pour and squeegee heated tack coat onto the prepared substrate at a rate of 100 to 125 sq. ft. per gal. For aggregated surfaces, spray heated tack coat onto the prepared substrate at a rate of 20-25 sq. ft. per gal. Refer to Polyflex 511 TackCoat technical data page for the recommended application temperature.

Paving equipment and truck tires may be saturated with a mixture of soap and water to reduce tracking of the tack coat from the prepared surface. As a guideline, mix 1 oz. of liquid soap with 1 gallon of water.